

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* SHIGEFUMI MASUDA and MINOURU ISHIDA

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Appeal 2009-0151  
Application 09/589,142  
Technology Center 2400

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Decided<sup>1</sup>: February 12, 2009

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Before KENNETH W. HAIRSTON, MAHSHID D. SAADAT,  
and KARL D. EASTHOM, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 1-7. (Br. 4).<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

We reverse.

Appellants invented, according to their disclosure, a noise reducing system. Upward and downward signals between a center and terminals commonly contain undesired noise. Appellants' system provides a noise-reduction device, which attenuates upward signals, including noise, and a noise-control device, which boosts the upward signals by an amount compensating for the attenuated upward signals. (Spec., Abstract).

Claim 1, illustrative of the invention, follows:

1. A system for reducing noise in a signal line, through which upward signals and downward signals are transmitted between a center and terminals, comprising:

a noise-reduction device, provided between the center and the terminals, which detects a noise increase regarding the upward signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal indicative of the noise increase, and is directly triggered by said control signal to insert a tone signal into the downward signals and to attenuate the upward signals by an increased amount without transmitting the control signal to the center; and

a noise-control device, provided at the terminals, which responds to the tone signal sent from the noise-reduction device by boosting a transmission level of the upward signals by an amount compensating for the attenuation of the upward signals by said noise-reduction device.

The Examiner relies on the following prior art references:

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<sup>2</sup> The Examiner's Answer (mailed February 7, 2007) ("Ans.") and Appellants' Brief (filed October 29, 2007) ("Br.") detail the respective positions of the parties.

Curry	US 3,750,022	July 31, 1973
Furukawa	US 5,987,069	Nov. 16, 1999 (filed Dec. 24, 1996)
Schwartzman	US 6,385,773 B1	May 7, 2002 (filed Jan. 7, 1999)

The Examiner rejected claims 1-5 and 7 under 35 U.S.C. § 103(a) based upon the teachings of Curry and Furukawa.

The Examiner rejected claim 6 under 35 U.S.C. § 103(a) based upon the teachings of Curry, Furukawa, and Schwartzman.

### ISSUE

This appeal presents the following issue: Did the Examiner establish a prima facie case that Curry and Furukawa collectively teach a noise-control device provided at the terminals, as set forth in representative claim 1?

Appellants do not present separate patentability arguments for the remaining claims. *See* 37 C.F.R. § 41.37(c)(1)(vii).

### FINDINGS OF FACT (FF)

1. Curry's local processing center (LPC) 16 at the headend 13 searches for noisy subscriber terminals (STS), such as subscriber terminal (ST) 85. Curry's LPC then switches any noisy ST out of the circuit via switches upstream of the ST. (Curry, col. 3, ll. 23-24, col. 19, ll. 43-62, Fig. 1).

2. Curry's system does not control any of the STS gains, or boost any signal therein. Curry does not disclose that an ST has a controllable amplifier.

3. In summary, Curry generally describes the system as follows:

The local processing center 16 constantly monitors upstream transmissions and detects excessive noise and interference. When excessive noise or interference is detected the local processing center 16 goes into a search mode of operation to isolate the noise or interference. Once these are isolated the local processing center 16 sends digital commands to phantom subscriber units in the system to cause them to either selectively switch out unused portions of the CATV system that contain detected noise sources or command one phantom subscriber to vary the gain of an upstream amplifier and the following phantom subscriber to attenuate the signal to thereby increase the signal-to-interference ratio.

(Col. 19, l. 66 to col. 20, l. 11).

4. The phantom subscriber units, PH Subs 29, 39, and 57, and variable amplifiers, 33, 43, 71, 79, 81, and 83, are all located between the STS at the one end and the head end 13 at the other end of the communications link. (Curry, Fig. 1).

5. Curry's LPC also receives noise measurements from phantom subscribers, and communicates with (real) subscribers at the STS for billing, programming, and other such related consumer functions. (Curry, col. 20, ll. 15-21, col. 6, ll. 20-40).

6. Curry discloses a desire to minimize noise at the headend (col. 7, ll. 9-12).

7. Furukawa teaches locally determining a signal quality parameter (SQP) at each digital receiver in a bidirectional (upstream and downstream) communication system. (Abstract, col. 2, ll. 57-62; col. 11, ll. 13-18; Figs. 6-8). The system also controls for noise locally at each transreceiver, by dynamically allocating carrier frequencies based on the SQP. (*Id.*). Such

dynamic allocation accounts for changes in noise conditions, overcoming static prior art systems. (Furukawa, col. 2; ll. 25-38; col. 4, ll. 37-46).

## PRINCIPLES OF LAW

“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). “On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.” *In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)). To establish a *prima facie* case,

“there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” . . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

*KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

## ANALYSIS

Appellants’ counsel acknowledged during oral argument (*see also* Br. 9-17) that a main difference between Curry and Appellants’ invention amounts essentially to the difference between Curry’s centralized control at the headend (via the LPC 16), and Appellants’ localized control. According

to Appellants (*see* Br. 15-17), the Examiner erred in finding (*see* Ans. 5) that it would have been obvious to modify Curry's central noise control to include Furukawa's local noise control (*see* FF 7). Appellant contends the two techniques are disparate. (Br. 15).

Appellants' argument pertains to the negative limitations recited in claim 1. In other words, according to Appellants (*see e.g.* Br. 10), the negative limitations "without a noise measurement command from the center" and "without transmitting the control signal to the center" preclude Curry's centralized control via the LPC 16 at the headend (i.e., the center recited in claim 1).

Curry's LPC communicates electronically with the headend center, the phantom subscriber units, and the STS. The LPC transmits control information to the phantom units to isolate noisy STS and/or vary amplifier gains, in response to noise measurement data transmitted from the phantom units to the LPC. (Curry, Fig. 1, FF 3, 5). The LPC also transmits and receives broadcast signals and consumer data. (FF 5). Thus, Curry's LPC performs two main functions, noise control, and consumer control. As such, common sense dictates that the LPC could be located anywhere in the system, and still communicate with the headend, the subscriber units, and the STS. Alternatively, the two main functions could be bifurcated such that the noise and consumer control functions respectively occur outside and inside the headend center.

In other words, skilled communications/control artisans would have recognized that Curry's LPC could still perform centralized control, without the LPC being located at Curry's headend center. Alternatively, skilled artisans would have recognized that at least the noise control function of the

LPC beneficially could have been bifurcated from the consumer control functions, and thus, located away from the headend, closer to the phantom subscribers to receive, for example, large amounts of locally transmitted noise data therefrom.

Such an LPC, located away from Curry's headend center, still allows for centralized control of all the phantom subscribers while avoiding excessive noise at the headend center, as Curry's system envisions (FF 3, 7), and also thereby allowing the center to handle the consumer/broadcast data (*see* FF 5). Either way, Curry's centralized control, as modified according to this discussion such that the LPC, or its separated noise control function, is located away from the headend center, meets the argued claim elements related to the negative limitations, because those limitations preclude communication to the center, not to a local LPC or a bifurcated LPC. Thus, Appellants arguments with respect to the negative limitations of the claim are not persuasive.

On the other hand, Appellants persuasively argue (Br. 8-9) that the Examiner failed to articulate how the combination of Curry and Furukawa teaches "the claimed feature of the noise-control device being 'provided at the terminals'." The Examiner does not explain how Curry discloses any noise-control *at a terminal*. The claimed terminals correspond to Curry's subscriber terminals (STS) (designated ST in the singular form), according to the Examiner and Appellants. For example, the Examiner refers (Ans. 10) to Curry's STS, stating "Curry [is] silent as to where a noise measuring device, between the center and the STS . . . ." Appellants' counsel confirmed at oral argument that Curry's terminals (STS) correspond to the claimed terminals.

The recited noise-control requires a boosting of a transmission level of a signal; i.e., the claim recites: “a noise-control device, provided at the terminals, which responds to the tone signal sent from the noise-reduction device by boosting a transmission level of the upward signals.” The Examiner does not point to any noise control device at the terminals, or any signal boosting thereat, either in Curry or in Furukawa. All of Curry’s control, including boosting transmission levels, which claim 1 generally requires, occurs upstream of the STS or terminals. (FF 1-4). In general, Curry teaches noise-reduction devices, including any one of the several controllable amplifiers, located at successive locations *between* the terminals and the head-end. (FF 3, 4).

As to Furukawa, the Examiner states that “Furukawa . . . discloses . . . a . . . transceiver ‘a noise measuring device,’ . . . *between* the center and the terminals.” (Ans. 5)(emphasis added). The Examiner repeats this finding in response to Appellants’ arguments. (Ans. 10). Thus, the Examiner has not set forth how the references collectively teach a noise control device *at* a terminal, as required by claim 1. Under *KSR*, *Kahn*, and *Oetiker*, without a clear articulation by the Examiner, the Examiner failed to establish a prima facie case of obviousness.

In view of the above discussion, we will not sustain the Examiner’s 35 U.S.C. § 103 rejection of independent claim 1, nor the rejections of claims 2-5 and 7, dependent therefrom, based on the collective teachings of Curry and Furukawa. We also will not sustain the 35 U.S.C. § 103 rejection of dependent claim 6, based on the collective teachings of Curry, Furukawa, and Schwartzman since the Examiner (*see* Ans. 7-8) has identified in Schwartzman no teaching or suggestion regarding the location of the noise



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control device to cure the deficiencies noted above with respect to the rejection of claim 1.

#### CONCLUSION

The Examiner did not establish a prima facie case that Curry and Furukawa collectively teach a noise-control device provided at the terminals, as set forth in representative claim 1.

#### DECISION

We reverse the Examiner's decision rejecting claims 1-7.

REVERSED

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